

PROKOPALO, G. I.

Prokopalo, G. I. -- "Electrical Conductivity and Slow Processes of Polarization in the Ceramic Substance  $\text{BaTiO}_3$ ." Cand Phys-Math Sci, Rostov State U, Rostov-on-Don 1953. (Zhuravlyovyy Zhurnal--Fizika, Jan 53)

SO: SUN 163, 22 July 1954

Prokopenko, O. I.

7

Isomorphism of the titanates and ferrates of strontium, barium, and lead. E. G. Resenko and O. I. Prokopenko, (V. M. Molotov State Univ., Rostov). *Kristallografiya*, 1, 525-3 (1956). Ferrates were prepd. by heating Sr, Ba, and Pb carbonates with  $\text{Fe}_2\text{O}_3$  for an hr. at  $1200^\circ$ , 4 hrs. at  $950^\circ$ , and an hr. at  $1000^\circ$ , resp. The cubic form of  $\text{BaFeO}_3$  was always obtained in spite of following the procedure of Maunofsky and Kedesdy (C.A. 48, 10401b). The value for  $\sigma$  varied with firing temp. between  $4.007$  ( $950^\circ$ ) and  $4.010$  ( $1150^\circ$ ). The ferrates had large elec. conductivities; the graphs of  $\log \sigma$  against  $10^4/T$  were linear with slope discontinuities in the cases of Pb and Ba ferrates. For  $\text{SrFeO}_3$ ,  $\log \sigma$  was  $-3$  for  $10^4/T = 17$ , and  $-5$  for  $10^4/T = 34$ . For  $\text{PbFeO}_3$ , the same graph formed 2 straight lines ( $-3.3$ ,  $17$ ) to a discontinuity at  $(-8, 23)$  and then to  $(-15, 34.5)$ . The corresponding points for  $\text{BaFeO}_3$  were  $(-3.8, 19)$ ,  $(-8, 21.5)$ , and  $(-12, 34.5)$ . A. I. Mackay

RM MK

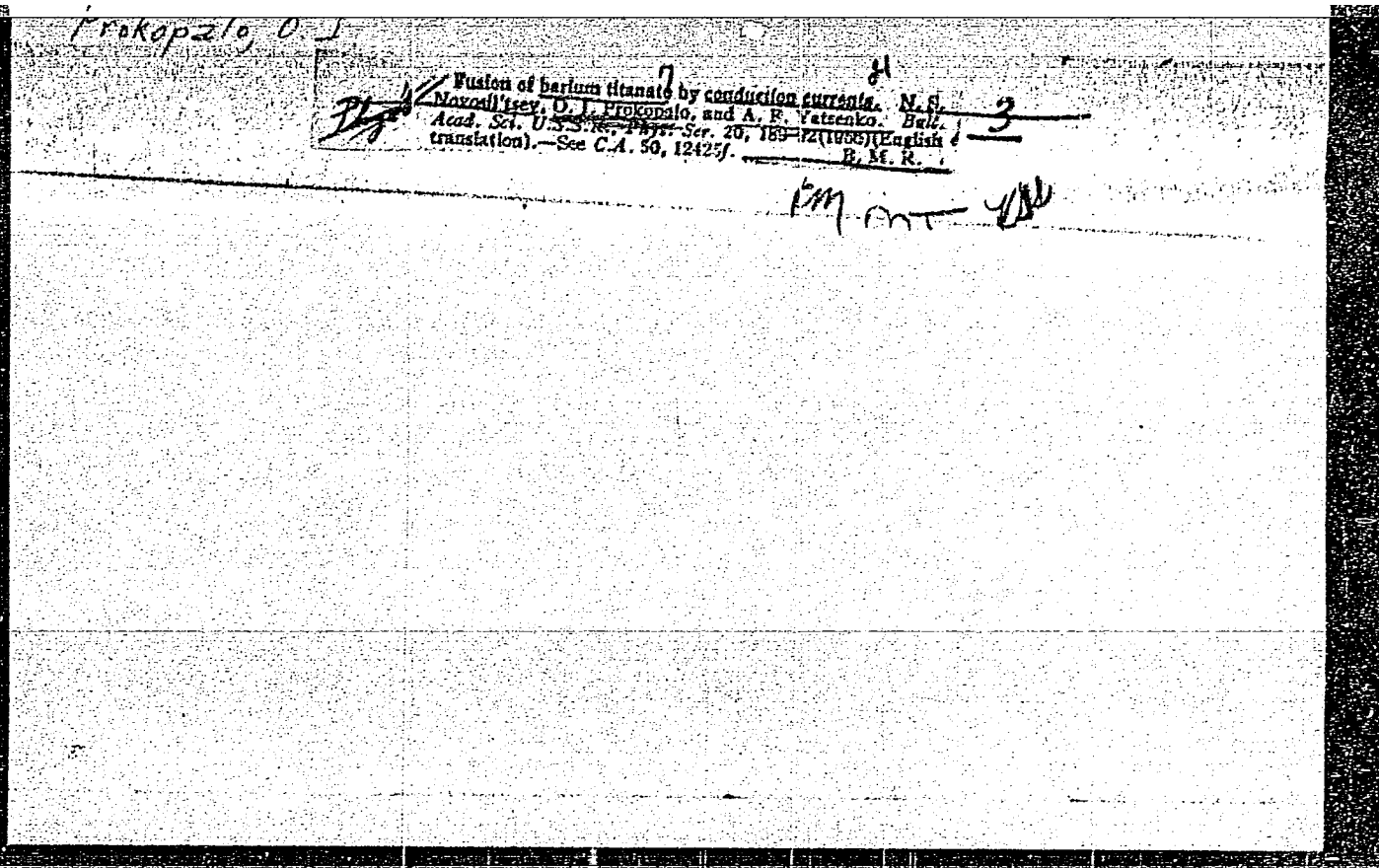
PROKOPALO, O. I.

1 O. Pleschka and O. I. Prokopalo (Phys.-Math. Inst., M. V. Molotov Rostov State Univ.). *Kristallografiya* 1, 703-7 (1966); cf. *C.A.* 51, 5495a. Slight changes, as shown by the profile of the 540 and 431 group of lines, occur in the structure of  $\text{BaTiO}_3$  when up to 3%  $\text{BaFeO}_3$  is added. At greater concns. of Fe indications of an addnl. hexagonal phase are seen. The Curie temp. falls linearly with  $\text{BaFeO}_3$  content 20° at 5 mol. %, and the dielec. properties of the mixt. above and below the 3 mol. % point are qualitatively different.

A. I. Mackay

PM

up



PROKOPALC, O. I.

✓ Fusion of barium titanate by conduction currents. N. S. Novosil'tsev, O. I. Prokopal, and A. F. Yatsenko (V. M. Molotov State Univ., Rostov): *Invest. Akad. Nauk S.S.S.R., Ser. Fiz.* 20, 200-10 (1960).—BaTiO<sub>3</sub> ceramic materials (1) sintered at 1300-1400°, have low d, unless fused with fluxes which decrease the dielec. permeability. The elec. cond. of such 1 has an activation energy of 1.4 e.v., but they show changes in cond. if heated to 500°. At 800-900° some heating by the current occurs. The current increases with time above 600°. Tests were made to melt BaTiO<sub>3</sub> by cond. current. Higher-d. (5.0-5.8 g./cc.) ceramic materials, having a 50% increase in the dielec. permeability at the Curie point, was obtained. S. Poksner

PM 1222

I 7844-66 EWP(e)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/EWP(b) IIP(e)  
 ACC NR: AP5028112 JD/WH SOURCE CODE: UR/0048/65/029/011/2026/2028

AUTHOR: Gorbacheva, L. K.: Prokopalo, O.I.

ORG: Rostov-on-the Don State University (Rostovskiy-na-Donu gosudarstvennyy universitet)

TITLE: Mechanism of slow polarization processes in barium titanate / Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-16 September 1964

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya, v. 29, no. 11, 1965, 2026-2028

TOPIC TAGS: ferroelectric material, barium titanate, single crystal, polycrystal, dielectric constant, electric polarization

ABSTRACT: The authors have measured the ratio  $P/V$  of the slow polarization emf to the polarizing voltage and the dc dielectric constant  $d$  of a number of barium titanate single crystals and polycrystalline specimens which were subjected to a polarizing field and subsequently short circuited for definite lengths of time. The experimental technique is described elsewhere (O.I.Prokopalo, Sb.Segnetoelektriki, str. 112, Izv. Rostovsk. un-ta, 1961). The polycrystalline specimens were from 1 to 8 mm thick and were prepared by the usual technique; the single crystals were 0.5 mm thick and were grown from a melt in KF. Fired on silver electrodes were employed and the measuring field was varied from 10 to 80 V/cm. The ratio  $P/V$  for polycrystalline

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ACC NR: AP5028112

materials was approximately independent of the thickness of the specimen, but  $d$  increased rapidly with increasing thickness. Both  $d$  and  $P/V$  for polycrystalline materials were independent of the measuring field strength, but  $P/V$  for single crystals decreased with increasing field strength. The slow polarization processes were found to be weaker and to develop more slowly in single crystals than in polycrystalline materials. These results are discussed briefly in terms of an equivalent circuit which has been presented elsewhere (O.I. Prokopalo, Fiz. tverdogo tela, 2, No. 2, 302 (1960)), and it is concluded that both volume effects and processes taking place in the vicinity of the electrodes contribute significantly to the slow polarization, but that the volume effects are the more important. The difference between the behaviors of single crystals and polycrystalline materials in fields of different strengths is not understood. Orig. art. has: 4 figures.

SUB CODE: SS, EM

SUBM DATE: 00/

ORIG REF: 006

OTH. REF: 001

Card 2/2

L 7848-66 EWP(p)/EPA(s)-2/EWT(m)/EWP(i)/EPA(w)-2/EWP(t)/EWP(b) IJP(c) JD/WE

ACC NR: AP5028115 SOURCE CODE: UR/0048/65/029/011/2038/2041

AUTHOR: Komarov, V.D.; Prokopalo, O.I.; Fesenko, Ye.G.

ORG: Rostov-on-the Don State University (Rostovskiy-na-Donu gosudarstvennyy universitet)

TITLE: Classification of dopants for barium titanate Report, Fourth All-Union Conference on Ferro-electricity held at Rostov-on-the Don 12-16 September 1964

SOURCE: AN SSSR. Izvestiya. Soriya fizicheskaya, v. 29, no. 11, 1965, 2038-2041

TOPIC TAGS: ferroelectric material; barium titanate, dopant

ABSTRACT: It is proposed that dpoants for barium titanate be classified into the following four groups: A) those which monotonically shift the Curie point without reducing the dielectric constant or giving rise to appreciable relaxation polariza- tion; B) those which at low concentrations do not considerably lower the Curie point and at large concentrations give rise to relaxation polarization processes; C) those which do not greatly shift the Curie point but reduce the dielectric constant at all temperatures owing to the formation of compounds that are not isomorphous with barium titanate; and D) those which considerably reduce the Curie temperature with an accompanying general reduction of the dielectric constant at higher concentrations owing to transformation of the barium titantate to the hexagonal (nonferroelectric) modification. Twenty-two dopants are assigned to these classes as shown in the table.

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ACC NR: AP5028115

Classification of barium titanate dopants

Class	Dopant
A	Zr <sup>4+</sup> , Hf <sup>4+</sup> , Sn <sup>4+</sup>
B	Co <sup>4+</sup> , Th <sup>4+</sup> Sh <sup>4+</sup> , Nb <sup>5+</sup> , Ta <sup>5+</sup>
C	Si <sup>4+</sup> , Ge <sup>4+</sup> V <sup>5+</sup> , W <sup>6+</sup> , Mo <sup>6+</sup>
D	Fe <sup>3+</sup> , Co <sup>3+</sup> , Ni <sup>3+</sup> , Lu <sup>3+</sup> , Yb <sup>3+</sup> , Tl <sup>+</sup> , Fr <sup>2+</sup> Cr <sup>3+</sup> , Mn <sup>4+</sup>

These assignments and possible mechanisms by which the different dopants might exert their influence are discussed briefly. Orig. art. has: 3 figures and 1 table.

SUB CODE: SS,EM

SUBM DATE: 00/

ORIG. REF: 019 OTH REF: 008

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KOMAROV, V.D.; PROKOPALO, O.I.; FESENKO, Ye.G.

Classification of modifiers for barium titanate. Izv. AN SSSR.  
Ser. fiz. 29 no.11:2038-2041 N '65. (MIRA 18:11)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

GORBACHEVA, L.K.; PROKOPALO, O.I.

Mechanism underlying slow polarization processes in barium titanate. Izv. AN SSSR. Ser. fiz. 29 no.11:2026-2028 N '61.  
(MIRA 18:11)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.

PROKOPALO, O.I.

Distribution of potential in barium titanate in a wide temperature range. Izv. AN SSSR. Ser. fiz. 29 no.6:1009-1012 Je '65.

(MIRA 18:6)

L 57556-65

IJP(c) JD/GG

EWT(1)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EEC(b)-2/EWP(b) Pi-4

ACCESSION NR: AP5016142

UP/0048/65/029/006/1009/1012

AUTHOR: Prokopalo, O.I.

TITLE: Potential distribution in barium titanate in a wide temperature range /Report, 4th All-Union Conference on Ferroelectricity held in Rostov-on-the-Don 12-18 Sept 1964/

SOURCE: AN SSSR.Izvestiya.Ser.fizicheskaya,v.29,no.6,1965,1009-1012

TOPIC TAGS: barium titanate, electric conductivity, nonlinearity, polycrystal

ABSTRACT: The author has investigated the potential distribution along an 8 x 8 x 50 mm parallelepiped of polycrystalline barium titanate. Contact was made at the ends of the sample and at several positions along its length by means of fired silver electrodes.

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L 57556-65  
ACCESSION NR: AP5016142

linear at temperatures from 200 to 400°C. When the temperature was raised above 400° the potential distribution became nonlinear. The nonlinearity was most pronounced at about 5700, and at 700° the potential distribution was again linear. When the temperature was raised above 700° the potential distribution again became nonlinear, but in

he does not do so.

Card 2/3

L 57556-65

ACCESSION NR: AP5016142

ASSOCIATION: none

SUBMITTED: 00

NR REF SOV: 005

ENCL: 00

SUB CODE: SS,EM

OTHER: 001

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ACCESSION NR: AR4042160

S/0196/64/000/005/B019/B019

SOURCE: Ref. zh. Elektrotehnika i energetika, Abs. 5B82

AUTHOR: Fesenko, Ye. G.; Prokopalo, O. I.; Komarov, V. D.; Shpolyanskiy, Ya. A.

TITLE: Investigation of the influence of modifiers with pentavalent cations on the properties of barium titanate

CITED SOURCE: Izv. Leningr. elektrotekhn. in-ta, vy\*p. 51, 1963, 252-259

TOPIC TAGS: pentavalent cation, barium titanate, dielectric property, x ray diffraction analysis, crystal lattice

TRANSLATION: Dielectric properties were investigated of ceramic samples of  $\text{BaTiO}_3$  with different concentrations of impurities of  $\text{V}_2\text{O}_5$  (0.8; 1.6; 2.4 mole %),  $\text{Sb}_2\text{O}_3$  (1; 2; 3; 5 mole %),  $\text{Nb}_2\text{O}_5$  and  $\text{Ta}_2\text{O}_5$  (0.5; 1.3; 5; 10 mole %): the dependence of  $\epsilon$  on the intensity of a variable electric field ( $E_{\text{up}}$  to 12 kv/cm), reversible

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ACCESSION NR: AR4042160

$\epsilon$  ( $E$  up to 10 kv/cm) at 50 cps, hysteresis loop, piezoelectric modulus  $d_{33}$  and dependence on temperature of  $\epsilon$  from 20 to 160°C (for samples with impurities of  $V_2O_5$  at 1 Mc and  $E = 30$  v/cm, for samples with impurities of  $Sb_2O_5$  at 1 kc and  $E = 200$  v/cm. X-ray diffraction analysis of samples was also conducted. Alloyed impurities were introduced into preliminarily synthesized  $BaTiO_3$  by means of 4 hour mixing in a ball mill and subsequent sintering at 1350-1450°C. Introduction of  $V_2O_5$  does not change the character of the dependence of  $\epsilon$  on temperature; however,  $\epsilon$  at  $\theta$  decreases and  $\theta$  is displaced in the direction of low temperatures (by 3 to 4 degrees if the samples were burned at 1350°C, and up to 7 degrees if the samples were burned at 1425°C). Samples with lowered  $\theta$  possess, accordingly, lowered tetragonality. With increase of concentration of  $V_2O_5$   $d_{33}$  decreases and  $\rho$  is increased. In  $BaTiO_3$  with  $Sb_2O_5$  impurities,  $\epsilon$  depends on  $E$ ;  $\epsilon$  at  $\theta$  is sharply lowered, and the mean value of  $c/a$  decreases. The assumption is made that in these samples there takes place the mechanism of relaxation polarization. With the increase of concentration of  $Sb_2O_5$ ,  $d_{33}$  decreases (upon addition of 5 mole %  $Sb_2O_5$ ,  $d_{33}$  decreases from 45 to 60 cgs). With the growth of  $f$  from 60 kc to 20 Mc,  $\epsilon$  decreases, and  $\tan\delta$  grows. In  $BaTiO_3$  with  $Nb_2O_5$  impurities, with the increase of concentration of impurities,  $\epsilon$  at  $\theta$  decreases almost by one order; however, the value of  $\theta$  is not changed. Analogous results were also obtained for  $BaTiO_3$  with

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ACCESSION NR: AR4042160

Ta<sub>2</sub>O<sub>5</sub> impurities. Decrease of  $\epsilon$  in these samples (with impurities of Nb<sub>2</sub>O<sub>5</sub> and Ta<sub>2</sub>O<sub>5</sub>) is explained by the structural distortions of the crystal lattice, and also partially by the presence of intercrystalline layers of ceramics. The assumption on the stabilization of ferroelectric modification of BaTiO<sub>3</sub> upon addition of S-valent cation impurities is confirmed by the fact that upon alloying them with BaTiO<sub>3</sub>, formation of a nonferroelectric hexagonal phase is not observed. Five illustrations. Bibliography: 10 references. [Rostov-on-Don State University].

SUB CODE: IC, SS

ENCL: 00

Card 3/3

S/058/63/000/003/069/104  
A059/A101

AUTHORS: Prokopalo, O. I., Fesenko, B. T.

TITLE: Modification of the dielectric properties of polycrystalline barium titanate on the substitution of titanium ions in it by hafnium or thorium ions

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 64, abstract 3E437  
(In collection: "Segnetoelektriki". Rostov-na-Donu, Rostovsk. un-t, 1961, 123 - 127)

TEXT: An attempt was made to obtain solid solutions of  $\text{Ba}(\text{Ti}, \text{Hf})\text{O}_3$  and  $\text{Ba}(\text{Ti}, \text{Th})\text{O}_3$  analogous to the solid solutions of  $\text{Ba}(\text{Ti}, \text{Zr})\text{O}_3$  by way of sintering  $\text{BaTiO}_3$  at 1,380 and 1,425°C with the oxides  $\text{HfO}_2$  and  $\text{ThO}_2$  to which  $\text{BaTiO}_3$  is added for maintaining the stoichiometric ratio. Solid solutions of  $\text{Ba}(\text{Ti}, \text{Zr})\text{O}_3$  were prepared in an analogous way for comparison; their dielectric properties were found to be similar to the properties of analogous compounds obtained when  $\text{BaZrO}_3$  was used as the initial product. An increase in the sintering temperature promotes a more uniform distribution of ions over the bulk of the sample which results in the possibility to obtain materials on the  $\text{BaTiO}_3$ -basis in which, in-

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Modification of the dielectric properties of...

S/058/63/000/003/069/104  
A059/A101

stead of Ti ions, up to 5 molar % of Hf ions and up to 6 molar % of Th ions have been introduced. The measurement of the dielectric constant  $\epsilon$  in weak fields at a frequency of 2 Mc showed that the increase in the Hf content leads to a shift of the  $\epsilon$  value towards the region of lower temperatures, with an introduction of up to 1 molar % of Hf causing an increase in  $\epsilon$ . In the case of  $\text{BaTiO}_3$  samples containing  $\text{ThO}_2$ , a second maximum is observed on the curves  $\epsilon = f(T)$  at 70 - 80°C.

S. Solov'yev

[Abstracter's note: Complete translation]

Card 2/2

S/058/63/000/003/068/104  
A059/A101

AUTHORS: Prokopalo, O. I., Soyver, V. G.

TITLE: Distribution of the potential in polycrystalline barium titanate

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 64, abstract 3E436  
(In collection: "Segnetoelektriki". Rostov-na-Donu, Rostovsk. un-t, 1961, 120 - 122)

TEXT: In order to check the assumption concerning the different mechanism of decrease of current at low (20 - 200°C) and high (500 - 600°C) temperatures, the longitudinal potential distribution (PD) in BaTiO<sub>3</sub> samples, 8 x 8 x 50 mm<sup>3</sup>, was measured with the temperature varied from 20 to 700°C. In the temperature range between 20 and 400°C, a deviation from linearity is observed. When the temperature is further increased above 600°C, a return to the linear PD occurs. Some measurements in different fields indicate the decrease of the temperature range in which nonlinearity occurs when the field intensity is increased. The character of PD deviation from linearity corresponds to the pattern of positive space charge build-up which is, however, in the opinion of the authors, insuffi-

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Distribution of the potential in...

S/058/63/000/003/068/104  
A059/A101

cient for a definite solution of the problem of the reasons for PD deviations from linearity.

S. Solov'yev

[Abstracter's note: Complete translation]

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S/196/63/000/002/010/026  
E194/E155

AUTHOR: Prokopalo, O.I.

TITLE: Slow processes of polarisation in ceramic BaTiO<sub>3</sub>

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no.2, 1963, 14-15, abstract 2 B 76. (In collection: Segnetoelektriki, Rostov University, Rostov-on-Don, 1961, 112-119)

TEXT: It is known that the change in current through a specimen of BaTiO<sub>3</sub> is not exponential; at temperatures near room temperature the shape of the temperature curve of specific conductivity  $\sigma$  depends very largely on the time interval between the application of voltage to the specimen and the measurement of current, which is associated with slow processes of establishing the polarization e.m.f.  $P$ . It was found that the value of  $P$  depends very much on the specimen temperature (see Figure; curves 1, 2, 3 and 4 obtained for values of  $t_2$  of, respectively, 0.1, 1, 5 and 10 minutes, where  $t_2$  is the time of making a reading after removing the applied voltage of 10 V). In order to explain the stability of  $P$  with time which governs the value of

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Slow processes of polarisation in ...

S/196/63/000/002/010/026  
E194/E155

E in a direct field, measurements of E for batches of specimens were made at monthly intervals. Results obtained at room temperature are tabulated (values of E at 50 c/s at a field strength of about 1 kV/cm are given for comparison). In a weak high-frequency field ( $5 \times 10^5$  c/s) E was about 800 for practically all specimens. High values of E in direct fields, and the differences in E of specimens, are attributed to slow mechanisms or polarisation. Specimens of BaTiO<sub>3</sub> fired at temperatures ranging from 1573 °K (1300 °C) to 1803 °K (1530 °C) showed that on increasing the firing temperature up to 1753 °K (1480 °C) the value of P of specimens in a direct field diminishes. E alters in the same way. The experimentally-observed stepwise increase of P and  $\epsilon$  at a firing temperature of 1853 °K (1580 °C) requires further investigation. 6 figures. 6 references.

[Abstractor's note: Complete translation.]

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S/058/63/000/002/039/070  
A062/A101

AUTHOR: Prokopalo, O. I.

TITLE: Slow polarization processes in ceramic BaTiO<sub>3</sub>

PERIODICAL: Referativnyy zhurnal, Fizika, no. 2, 1963, abstract 2E411  
(In collection: "Segnetoelektriki". Rostov-na-Donu, Rostovsk, un-t, 1961, 112 - 119)

TEXT: Slow polarization processes were investigated in ceramic samples of BaTiO<sub>3</sub> in constant low frequency fields. The polarization current was measured by the apparatus described previously (RZh Fiz, 1960, no. 4, 9027). The time dependences of the logarithm of the potential of the sample are given. The deviation from a straight line gives evidence of the slow capacity variation of the sample with time. It is shown that the electromotive force depends on the time of holding the sample under tension, the time of short-circuiting the sample covers and the tension applied to the sample. Results are given of determining the polarization P and the dielectric permittivity  $\epsilon$  of BaTiO<sub>3</sub> samples in view of checking the stability during slow polarization processes. The time dependence of P is given in

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Slow polarization processes in ceramic  $\text{BaTiO}_3$

S/058/63/000/002/039/070  
A062/A101

the temperature range from room temperature to  $+180^\circ\text{C}$ . The observed regularities in the behaviour of  $\text{BaTiO}_3$  in slow polarization processes are qualitatively explained with the aid of the previously suggested equivalent circuit (RZh Fiz, 1960, no. 4, 9028)

N. Ivanov

[Abstracter's note: Complete translation]

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S/196/63/000/001/010/035  
E193/E383

AUTHOR: Prokopalo, O.I. and Fesenko, Ye.G.

TITLE: The effect of structure of starting materials and sintering temperature on the dielectric properties of  $\text{BaTiO}_3$ - $\text{BaFeO}_3$  mixtures

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika, no. 1, 1963, 18-19, abstract 1 B59. (In collection: Segnetoelektriki (Ferroelectrics), Rostov-na-Donu, Rostovsk. un-t, 1961, 101-104)

TEXT: A study was conducted of the dependence of the properties of isomorphous  $\text{BaTiO}_3$ - $\text{BaFeO}_3$  mixtures on the crystal structure of the starting constituents and the temperature of the final sintering. The experimental specimens were prepared from cubic (K) and tetragonal (T) modifications of  $\text{BaTiO}_3$  obtained by sintering  $\text{Ba(OH)}_2 \cdot 8\text{H}_2\text{O}$  and  $\text{TiO}_2$  at, respectively, 1073 °K (800 °C) and 1573 °K (1300 °C), and cubic (k), tetragonal (t) and hexagonal (g) modifications of  $\text{BaFeO}_3$ . The following  $\text{BaTiO}_3$ - $\text{BaFeO}_3$  combinations were investigated: cubic-cubic (Kk); cubic-tetragonal Card 1/4

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E193/E383

The effect of structure ....

(Kt); cubic-hexagonal (Kg); tetragonal-cubic (Tk); tetragonal-tetragonal (Tt); tetragonal-hexagonal (Tg). The  $\text{BaFeO}_3$  content of these mixtures, sintered at  $1653^\circ\text{K}$  ( $1380^\circ\text{C}$ ) and  $1773^\circ\text{K}$  ( $1500^\circ\text{C}$ ) did not exceed 10 mole,%. The temperature-dependence of  $\epsilon$  in the  $293-403^\circ\text{K}$  ( $20-130^\circ\text{C}$ ) range at  $f = 5 \times 10^5$  c.p.s. was studied and X-ray diffraction analysis was carried out. It was shown that specimens prepared from tetragonal and cubic  $\text{BaTiO}_3$  modifications had substantially different properties. In the case of Tk, Tt and Tg specimens, sintered at about  $1653^\circ\text{K}$  ( $1380^\circ\text{C}$ ),  $\epsilon$  decreased with increasing concentration of  $\text{BaFeO}_3$ , this effect being particularly pronounced at  $\theta$  which remained practically constant, but decreased in specimens sintered at  $1773^\circ\text{K}$  ( $1500^\circ\text{C}$ ). In the case of Kk, Kt and Kg specimens, sintered at  $1653^\circ\text{K}$  ( $1380^\circ\text{C}$ ), not only  $\epsilon$  but also  $\theta$  decreased with increasing  $\text{BaFeO}_3$  concentration; the decrease in  $\theta$  was more pronounced in specimens of this type, sintered at  $1773^\circ\text{K}$  ( $1500^\circ\text{C}$ ). Although diffusion of both Ti into  $\text{BaFeO}_3$  and Fe into  $\text{BaTiO}_3$  takes place during sintering, it is sufficient to consider the diffusion of Fe ions to sites occupied by Ti ions. In this case, each  $\text{BaFeO}_3$

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E193/E383

The effect of structure ....

crystal can be regarded as being surrounded by  $\text{BaTiO}_3$  crystallites. At temperatures not higher than  $1653^\circ\text{K}$  ( $1380^\circ\text{C}$ ) the Fe ions migrate from the  $\text{BaFeO}_3$  crystals to the immediately adjacent  $\text{BaTiO}_3$  crystallites only, as a result of which  $\text{BaFeO}_3$  is transformed to its hexagonal modification. Thus, at a sintering temperature of about  $1653^\circ\text{K}$  ( $1380^\circ\text{C}$ ), side-by-side with the pure perovskite modification of  $\text{BaTiO}_3$ , the hexagonal modifications of  $\text{BaFeO}_3$  and  $\text{Ba}(\text{Ti}_{1-x}\text{Fe}_x)\text{O}_3$  are present. This, according to the present authors, explains why  $\epsilon$  is not affected by the variation in the  $\text{BaFeO}_3$  content, whereas  $\epsilon$  decreases as the  $\text{BaFeO}_3$  concentration increases. The diffusing Fe ions cross the grain-boundaries at a sintering temperature of  $1773^\circ\text{K}$  ( $1500^\circ\text{C}$ ) and this brings about a more uniform distribution of Fe in the specimen. At low  $\text{BaFeO}_3$  concentrations and at temperatures lower than the temperature of the transformation from perovskite to hexagonal modification, a  $\text{Ba}(\text{Ti}_{1-x}\text{Fe}_x)\text{O}_3$  solid solution is formed with a spontaneous deformation lower than that of  $\text{BaTiO}_3$ , this bringing about a decrease in  $\theta$ . The temperature of the perovskite-to-hexagonal-modification transformation decreases at higher  $\text{BaFeO}_3$  concentrations

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The effect of structure ....

S/196/63/000/001/010/035  
E193/E383

and the specimens consist of two phases: the perovskite modification with decreased spontaneous deformation and the hexagonal phase. It was established that the relative proportion of these two phases at a given temperature depended on the sintering time. It was also asserted that the thermodynamic stability and the degree of dispersion of the starting materials played an important role in the processes studied. There are 4 figures and 3 references.

[Abstracter's note: Complete translation.]

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S/196/63/000/001/011/035  
E193/E383

AUTHORS: Prokopalo, O.I. and Soyev, V.G.

TITLE: The potential distribution in polycrystalline barium titanate

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no. 1, 1963, 19, abstract 1 B60. (In collection: Segnetoelektriki (Ferroelectrics), Rostov-na-Donu, Rostovsk. un-t, 1961, 120-122)

TEXT: The probe method was used in a study of the potential distribution in polycrystalline  $\text{BaTiO}_3$  and some  $\text{BaTiO}_3$ -base solid solutions in a wide temperature interval. It was shown that  $\text{BaTiO}_3$  retained its linear characteristics in the 293-673 °K (20-400 °C) range. Large scatter of experimental results at room temperature was associated with surface contaminants and could be eliminated by careful cleaning and preliminary annealing. A deviation in the potential distribution from the linear was observed on heating the specimens above 723 °K (450 °C), this effect persisting up to 923 °K (650 °C) at a field strength of 10 V/cm. Linearity of the potential distribution was restored on further heating. It was  
Card 1/2

The potential distribution ....

S/196/63/000/001/011/035  
E193/E383

postulated that with increasing intensity of the electric field the range in which the potential distribution deviated from the linear decreased. Nonlinearity observed by the present authors resembled the effect due to build-up of a volume charge. This, it would appear, was caused by the fact that the transfer of the negative charge from the electrode to the specimen was impeded when a certain temperature was reached. There are 1 figure and 3 references.

[Abstracter's note: Complete translation]

Card 2/2



44654

S/196/63/000/001/012/035

E193/E383

2417800

AUTHORS: Prokopalo, O.I. and Pesenko, Ye.G.

TITLE: Variation in the dielectric properties of polycrystalline barium titanate accompanying the displacement of titanium ions by hafnium or thorium

PERIODICAL: Referativnyy zhurnal, Elektrotehnika i energetika, no. 1, 1963, 19, abstract 1 B61. (In collection: Segnetoelektriki (Ferroelectrics), Rostov-na-Donu, Rostovsk. un-t, 1961, 123-127)

TEXT: The temperature-dependence of  $\epsilon$  of polycrystalline  $\text{BaTiO}_3$ , containing various proportions of Zr, Hf and Th, was studied in the 293-443 °K (20-150 °C) range. The measurements were carried out in weak electric fields at  $f = 2 \text{ Mc/s}$  on specimens made from  $\text{BaTiO}_3$  and  $\text{BaCO}_3$ , mixed with  $\text{ZrO}_2$ ,  $\text{HfO}_2$  or  $\text{ThO}_2$  and sintered at 1655 °K (1380 °C) or 1698 °K (1425 °C). The maximum content of the alloying additions was 21 mole.% Zr, 5 mole.% Hf and 6 mole.% Th. It was established that the Zr-bearing specimens constituted solid solutions and that the temperature-dependence of  $\epsilon$  for specimens sintered at 1653 °K (1380 °C) was similar to that of materials

Card 1/3

Variation in ....

S/196/65/000/001/012/035  
E193/E583

sintered at 1698 °K (1425 °C). Analysis of the  $\epsilon$ /temperature curves (see the figure) led to the conclusion that isomorphic displacement of the Ti ions by Hf ions took place in specimens with very small Hf additions sintered at 1653 °K (1380 °C), an increase in  $\epsilon$  and decrease in  $\theta$  taking place in specimens with higher Hf contents. A more uniform distribution of ions in the specimen volume was attained at a higher sintering temperature and isomorphic displacement of the Ti ions by Hf ions took place. Similar considerations applied to the Th-bearing materials; in contrast with Hf, however, raising the sintering temperature of specimens with a high Th content brought about the appearance of an additional maximum on the  $\epsilon$ /temperature curve at 343-355 °K (70-80 °C). It was concluded that by exercising strict control of the pertinent technological factors (introducing Hf in the form of BaHfO<sub>3</sub>, ensuring a more uniform distribution of the Hf ions, reducing the particle size of the starting materials and increasing the sintering temperature), it should be possible to obtain Hf- and Th-bearing, BaTiO<sub>3</sub>-base solid solutions with properties similar to those of solid solutions of Zr in BaTiO<sub>3</sub>. There are 3 figures and 2 references.

Card 2/3

PROKOPALO, O.I.

Methods for measuring an emf. of high-voltage polarization.  
Fiz. tver. tela 2 no.2:302-305 F '60. (MIRA 14:8)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.  
(Electromotive force) (Polarization (Electricity))  
(Dielectrics)

FESENKO, Ye.G.; PROKOPALO, O.I.

Some data on the  $\text{BaTiO}_3$ — $\text{BaHfO}_3$  phase diagram. *Kristallografiya*  
6 no.3:469-470 My-Je '61. (MIRA 14:8)

1. Rostovskiy-na-Donu gosudarstvennyy universitet.  
(Phase rule and equilibrium)  
(Barium titanate)  
(Barium hafnate)

22797

S/070/61/006/003/006/009  
E073/E535

24,7360(1153,1160,1482)

AUTHORS: Fesenko. Ye. G. and Prokopalo. O. I.

TITLE: Some data on the phase diagram of  $\text{BaTiO}_3$ - $\text{BaHfO}_3$

PERIODICAL: Kristallografiya, 1961, Vol.6, No. 3, pp.469-470

TEXT: A number of authors have found that solid solutions are obtained as a result of high temperature sintering of the mixtures  $\text{BaTiO}_3$ - $\text{BaZrO}_3$  and  $\text{BaTiO}_3$ - $\text{BaSnO}_3$ . Since the chemical properties and the ion radius of  $\text{Hf}$  are near to those of zirconium, it could be expected that solid solutions will also form in the system  $\text{BaTiO}_3$ - $\text{BaHfO}_3$  and that the properties of these will be similar to the properties of  $\text{BaTiO}_3$ - $\text{BaZrO}_3$ , i.e. that the system  $\text{BaTiO}_3$ - $\text{BaHfO}_3$  should be similar to the system  $\text{BaTiO}_3$ - $\text{BaZrO}_3$ . The here described experiments prove this assumption and show that the phase diagram of the system  $\text{BaTiO}_3$ - $\text{BaHfO}_3$  is similar to the phase diagram of  $\text{BaTiO}_3$ - $\text{BaZrO}_3$  and  $\text{BaTiO}_3$ - $\text{BaSnO}_3$ . The starting components for producing these specimens were  $\text{BaTiO}_3$  synthesized by 20 hour sintering at  $400^\circ\text{C}$  from  $\text{Ba}(\text{OH})_2 \cdot 8\text{H}_2\text{O}$  and  $\text{TiO}_2$  in the stoichiometric ratio and  $\text{BaHfO}_3$  produced by treble

Card 1/4

X

22797

Some data on the phase diagram ... S/070/61/006/003/008/009  
E073/E535

sintering at 600, 1000 and 1400°C, each time for a duration of 12 hours. It was found by X-ray analysis that, under these conditions, the reaction of formation of  $\text{BaHfO}_3$  is practically complete and that the produced compounds belong to the structural type of perovskite with a cubic lattice parameter  $a = 4.171 \text{ \AA}$ , which is in good agreement with results obtained by C. Shirane and R. Pepinsky (Ref.6: Phase transitions in antiferroelectric  $\text{PbHfO}_3$ , Phys. Rev. 4, 91, 812, 1953). The mixture  $\text{BaTiO}_3$  and  $\text{BaHfO}_3$ , containing up to 22%  $\text{BaHfO}_3$ , was crushed for 5 hours in a ball mill, pressed into discs and sintered at 1500°C for 1 hour. The X-ray analysis of the lines  $h^2 + k^2 + l^2 = 26$ , for which  $75^\circ < \theta < 80^\circ$  (copper radiation, chamber PK3 (RKE)) has shown that for all the investigated concentrations solid solutions form. This is also confirmed by the curves, Fig.1, expressing the dependence of the dielectric constant,  $\epsilon$ , on the temperature, °C, which are based on results obtained in weak fields of a frequency of  $10^6$  c.p.s. The numbers on the curves indicate the molar per cent of  $\text{BaHfO}_3$  in the specimens. In the same way as was done by G. A. Smolenskiy and V. A. Isupov (Ref.7: Dokl. AN SSSR, 1, 53, 1954) for the system  $\text{BaTiO}_3$ - $\text{BaSnO}_3$ , the temperatures  $\theta_1$  and

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Some data on the phase diagram ... S/070/61/006/003/008/009  
E073/E535

$\Theta_2$  of the phase transitions were determined from the curves  $\epsilon = f(T)$  and a phase diagram, Fig.2, was plotted. It can be seen that the line of the points  $\Theta_1$  sub-divides the phase diagram into two parts: the range of the paraelectric state (cubic symmetry) and the range of the ferroelectric state. In the latter, a region II can be distinguished between the lines  $\Theta_1$  and  $\Theta_2$ , which corresponds to tetragonal symmetry, as can be seen from X-ray structural data. Comparison of this part of the diagram with the phase diagrams of the systems  $\text{BaTiO}_3\text{-BaZrO}_3$  and  $\text{BaTiO}_3\text{-BaSnO}_3$  indicates that they are generally similar. X-ray structural investigations carried out at various temperatures for specimens containing over 2%  $\text{BaHfO}_3$  confirms the existence below the curve  $\Theta_2$  of a phase with a symmetry differing from the tetragonal one. It is being investigated and it is anticipated that it will be pseudomonoclinic. In this case its existence should be limited by the line of the points  $\Theta_3$ , which is dashed in Fig.2. More accurate data will be required on the presented phase diagram. There are 2 figures and 7 references: 5 Soviet and 2 non-Soviet.

(Abstractor's Note: This is a complete translation.)

Card 3/4

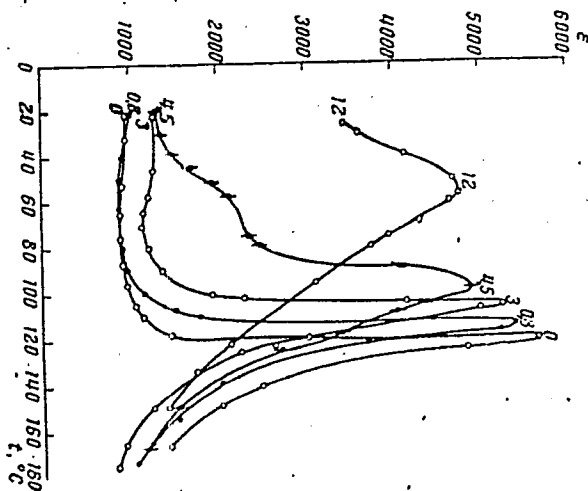
22797

Some data on the phase diagram ... S/O70/61/006/003/008/009  
E075/E535

ASSOCIATION: Rostovskiy-na-Donu gosudarstvennyy universitet  
(Rostov-on-Don State University)

SUBMITTED: September 5, 1960

Fig. 1



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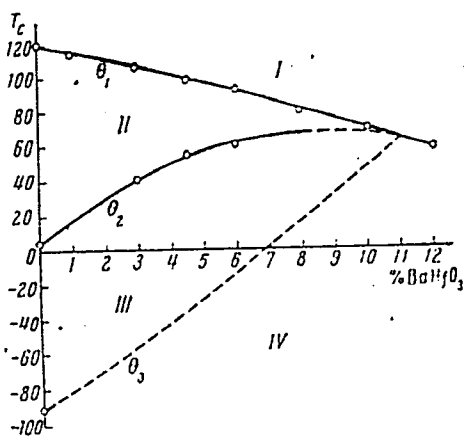


Fig. 2



PROKOPALO, O.I.; FESENKO, Ye.G.

Investigation of properties of solid solutions of barium and  
lead titanates and ferrates. Izv. AN SSSR. Ser.fiz. 22 no.12:  
1488-1491 D '58. (MIRA 12:2)

1. Nauchno-issledovatel'skiy fiziko-matematicheskii institut  
pri Rostovskom-na-Donu gosudarstvennom universitete.  
(Titanates) (Ferrates) (Solutions, Solid)

24(2)

AUTHORS:

Prokopalo, O. I., Fesenko, Ye. G.

SOV/48-22-12-20/33

TITLE:

Investigation of the Properties of Solid Solutions of Titanate and Ferrate of Barium and Lead (Issledovaniye svoystv tverdykh rastverov titanata i ferrata bariya i svintsa)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1958, Vol 22, Nr 12, pp 1488-1491 (USSR)

ABSTRACT:

In the present paper a few investigation results concerning the solid  $\text{Ba}(\text{Ti}, \text{Fe})\text{O}_3$ - and  $\text{Pb}(\text{Ti}, \text{Fe})\text{O}_3$ -solutions are given. It has been proved that the substitution of about 1.5% Ti-ions by Fe-ions in  $\text{BaTiO}_3$  leads to a modification of the structure type, whereas a substitution of about 60% Ti-ions by Fe-ions in  $\text{PbTiO}_3$  only causes a modification in the parameter. The presence of different modifications of  $\text{BaFeO}_3$  and  $\text{BaTiO}_3$  allows to employ different initial component pairs for the preparation of solid solutions: cubical  $\text{BaTiO}_3$  and cubical  $\text{BaFeO}_3$ , cubical  $\text{BaTiO}_3$  and hexagonal  $\text{BaFeO}_3$ , tetragonal  $\text{BaTiO}_3$  and hexagonal  $\text{BaFeO}_3$ . The samples were prepared according to a method

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Investigation of the Properties of Solid Solutions  
of Titanate and Ferrate of Barium and Lead

SOV/48-22-12-20/33

already earlier described (Ref 6). Investigations showed that solid solutions are formed by  $\text{BaTiO}_3$  and  $\text{BaFeO}_3$ . The most important difference between them and those formerly known is that with an increase of the  $\text{BaFeO}_3$ -content, even by small amounts, the modification of the tetragonal phase, usually monotonous in solid solutions, and the displacement of the Curie (Kyuri) temperature abruptly goes over to the hexagonal phase. The percentage content of  $\text{BaFeO}_3$  at which the passage to the hexagonal modification takes place, essentially depends on the method used for preparing the solid solutions. In the preparation of solid  $\text{Pb}(\text{Ti}, \text{Fe})\text{O}_3$ -solutions,  $\text{PbFeO}_3$  prepared according to the method described in reference 3, as well as  $\text{PbTiO}_3$  were used as initial components. Solid  $\text{Pb}(\text{Ti}, \text{Fe})\text{O}_3$  solutions were obtained by annealing in a free atmosphere at about  $1000^\circ$ . The X-ray structural investigation showed (Fig 6) that a number of solid solutions is formed by  $\text{PbTiO}_3$  and  $\text{PbFeO}_3$  and that the tetragonal modification goes back with an increase

Card 2/3

Investigation of the Properties of Solid Solutions  
of Titanate and Ferrate of Barium and Lead

SOV/48-22-12-20/33

of the  $\text{BaFeO}_3$ -content. The measurements of electric parameters of solid solutions showed that with an increase of the  $\text{PbFeO}_3$ -content  $\epsilon$  and  $\text{tg}\delta$  become smaller and the activation energy shows a tendency towards saturation. There are 6 figures and 6 references, 2 of which are Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-matematicheskiiy institut pri Rostovskom-na-Donu gos. universitete  
(Scientific Research Institute of Physics and Mathematics at the Rostov-na-Donu State University)

Card 3/3

PROKOPALO O I

2199. Isomorphic mixtures of barium titanate and ferrate.—E. G. Fesenko and O. I. PROKOPALO (*Crystallography*, 1, 1957). In Russian.

4  
from  
only

127-10-8/24

PROKOP, S.

SUBJECT: CSR/Mining

AUTHORS: Gorak, R., Mrnka, Z. and Prokop, S., Engineers

TITLE: Mining of Iron Ores in Ejpovice (Razrabotka zheleznykh rud v Eypovitse)

PERIODICAL: Gornyy Zhurnal, 1957, #10, pp 34-39 (USSR)

ABSTRACT: The Ejpovice iron ore deposit is located between Rokycany and Plzen. The deposit is of the sedimentary type and consists of 2 ore levels. The ore bodies have many shear zones due to tectonic phenomena and their dip angle is approximately 15°.

The ore of the lower level, whose thickness varies from 0 to 20 m, contains over 30 % of iron. That of the principal upper level, whose thickness is from 15 to 25 m, contains 25 to 27 % of iron.

The roof of the principal ore body is represented by sandstone, quartzite and micaceous slate which are very crumbling. The covering rocks are represented by Tertiary sediments.

The whole deposit area is divided by a railroad line into 2 parts: the northern part occupying 0.5 sq km is exploited by

Card 1/2

TITLE:

Mining of Iron Ores in Ejpvovice (Razrabotka zheleznykh rud v Eypovitse)

127-10-8/24

the strip mining. The southern part, occupying 0.7 sq km, will be mined by the underground method. The planned annual output of the both parts will total 1,100,000 tons of ore.

The overburden is removed in a 10 m high bench, while ore is mined in 5 m high benches due to considerable tectonic disturbances.

Percussion drilling of bore holes, 150 to 200 mm in diameter, is performed with Soviet "BY-20-2" drilling machines.

Rock and ore are loaded with single-bucket excavators of the "Mb-2" and "E-25" types into dump trucks "T-111" (8-ton capacity) and "MA3-525" (25-ton capacity).

The article contains 7 photos and 5 tables.  
No references are cited.

ASSOCIATION: Not indicated

PRESENTED BY:

SUBMITTED: No date indicated

AVAILABLE: At the Library of Congress.

Card 2/2

BULGARIA/Diseases of Farm Animals Diseases Caused by Bacteria  
and Fungi

3

Abs Jour: Ref Zhur-Biol , No 5, 1958, 21629.

Author : Iliyev, T., Goranov, Z., Prokopanov An., Arsov, R.,  
Yovchev, J., Khubenov, M., Girginov, G.

Inst : Higher Veterinary Medical Institute.

Title : On the Problem of Clinical Measures and Treatment  
of Gangrenous Mastitis in Sheep and Goats.

Grig Pub: Nauchn. tr. Vissh. Veterinarmed. in-t, 1956, 4, 109-128.

Abstract: Gangrenous mastitis infections in sheep and goats were  
more frequently observed during the lactation period.  
The course of the disease took hyperacute, acute, sub-  
acute and chronic forms. Only one half of the udder  
was affected. In severe cases of infection, intoxication  
and septicemia were observed, resulting in death

Card : 1/3



BULGARIA/Diseases of Farm Animals. Diseases Caused by Bacteria and Fungi.

R

Abs Jour: Ref Zhur-Biol., No 5, 1958, 21629

of the animal; in mild cases, however, recovery ensued, although it was accompanied by casting off of the necrotic sections of the gland. Penicillin (I) therapy applied at the onset of the disease (within the first 10-12 hours), consisting of intramuscular injections of 100-200 thousand m. u. every 12 hours, or a double infusion of 10-15 l. of physiol. solution containing 20-100 thousand m. u. of I into the afflicted cistern of the udder, resulted in most cases in keeping the animal alive and in preserving the udder. An analogous treatment applied 2-3 days after the onset of the disease averted the animal's death, but did not prevent necrosis of the udder. Combined

Card : 2/3

BOGOMACHENKO, Ivan Prokop'yevich; VENTASHOVA, P.I., rel.

[What members of housing cooperatives should know] who  
dolzhen znat' chleny raionnykh stroytel'nykh kooperativ.  
Moskva, Izd-vo "Izobrazheniya i umeniye," 1964. 105 p.  
(U.S. 1717)

PROKOPCILAS, A.

SCIENCE

PERIODICAL: DARBAI. SERIJA B. TRULT, SERIJA B. No. 2, 1958

Prokopcik, A, Dependence of the catalytic activity of some hydroxides on the conditions of their aging. In Russian. p. 51.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2,  
February 1959, Unclass.

PROKOPCIKAS, A.

SCIENCE

PERIODICAL: DARBAI. SERIJA B. TRUDY. SERIJA B. No. 2, 1953

Prokopcik, A. Mixed hydroxide catalysts. 3. The dependence of the catalytic activity of some aging hydroxides on the conditions of their sedimentation. In Russian. p. 61.

Monthly list of East European Accessions (EEAI) LC, Vol. 8, No. 2,  
February 1959, Unclass.

PROKOPCHENKO, Ivan Prokop'yevich

[Housing and building cooperatives in the U.S.S.R.]  
Zhilishchno-stroitel'nye kooperativy v SSSR. Moskva,  
Stroiizdat, 1965. 125 p. (MIRA 18:8)

PROKOPCHENKO, T. (Stalinogorsk, Moskovskoy oblasti)

Filter for electric hot-water heaters. Obshchestv. pit. no.11:41  
N '58. (MIRA 11:12)  
(Water--Purification) (Water heaters)

MIROSHNICHENKO, F.D.; FEL'DBYUM, I.S.; PROKOPCHENKO, Ye.A.

Improving transformer steel properties. Steel 25 no.50413. My 147.  
(MIRA 1806)

S/236/63/000/001/005/015  
D251/D308

AUTHORS: Prokopchik, A. Yu. and Vashkyalis, A. I.

TITLE: Study of the properties of peroxycarbonates in solution  
(1. Problem of the "true existence" of peroxycarbonates,  
and their redox potentials)

SOURCE: Akademiya nauk Litovskoy SSR. Trudy. Seriya B. no. 1,  
1963, 61-71

TEXT: The authors studied the redox potentials in solutions of various peroxycarbonates, in view of the lack of definite data regarding the difference between true peroxycarbonates and peroxyhydrides of ordinary carbonates. Platinum (smooth and platinized) and saturated calomel (reference) electrodes were used, with voltmeter A4-M2 (A4-M2); the accuracy was ~5%. The compounds studied were  $K_2C_2O_6$  prepared in various ways,  $KHCO_4$  and  $K_2CO_3 \cdot 3H_2O$ . It was found that at  $-10^\circ C$  the potential of the Pt electrode was 300 - 400 mv higher in solutions of true peroxycarbonates (electrolytic, and those

Card 1/2



Study of the properties ...

S/236/63/000/001/005/015  
D251/D308

formed from  $\text{CO}_2$  and  $\text{K}_2\text{O}_2$ , peroxyhydrates, and aq. alk.  $\text{H}_2\text{O}_2$ ) than in  $\text{H}_2\text{O}_2$  solutions, whilst no such difference was observed in solutions of the carbonate peroxyhydrates ( $\text{K}_2\text{CO}_3 \cdot 3\text{H}_2\text{O}_2$ ). The substances formed from  $\text{H}_2\text{O}_2$  and carbonates by salting out are thus regarded merely as addition compounds. Stability determinations showed the peroxycarbonate solutions to be stable only at low temperatures and high pH. There are 2 figures.

ASSOCIATION: Institut khimii i khimicheskoy tekhnologii Akademii nauk Litovskoy SSR (Institute of Chemistry and Chemical Technology of the AS Lithuanian SSR)

SUBMITTED: July 10, 1962

Card 2/2

*PROKOPCHIK, A. YU.*

USSR/Chemistry - Physical chemistry

Card 1/1 : Pub. 147 - 17/22

Authors : Prokopchik, A. Yu., and Yanitskiy, I. V.

Title : Catalytic decomposition of calcium hypochlorite in an aqueous solution

Periodical : Zhur. fiz. khim. 28/11, 1999-2005, November 1954

Abstract : The catalytic decomposition of pure calcium hypochlorite solutions in the presence of cobalt, nickel and iron hydroxides and various additions assuming the role of promoters or inhibitors was investigated. A strong inhibiting effect of the solid phase of the free calcium hydroxide on the catalytic activity of Ni and Fe-hydroxides was established. The inhibiting effect of silicic acid compounds on the decomposition of calcium hypochlorite in the presence of Fe-hydroxides is described. It was found that the inhibitor particles are negative charged and the Fe-hydroxide particles positive charged; the reaction between the opposite particles results in reduction of the active surfaces of the catalyst. Eleven references: 5-USSR; 3-USA; 1-English; 2-German (1906-1947). Tables.

Institution : The Polytechnicum, Kaunas Lith-SSR

Submitted : March 23, 1954

PROKOPCHIK, A. Yu

2189 Argentimetric determination of chlorate  
A. Yu. Prokopchik and P. K. Norkus. *Trudy*  
*AN SSSR, Khim. Ser.* 1955, B3, 17-22, Ref. Zhur.  
*Khim.*, 1956, Abstr. No. 47,326. The argenti-  
metric determination of  $\text{ClO}_3^-$  is based on its  
reduction by  $\text{NaNO}_2$  to  $\text{Cl}^-$ . Dissolve the sample  
of  $\text{KClO}_3$  (0.3 g) in water (20 ml), add a 15% soln.  
of  $\text{NaNO}_2$  (6 ml) and conc.  $\text{HNO}_3$  (2 ml), and boil  
for 1 min. Cool, add 0.05 to 0.01 N  $\text{AgNO}_3$  soln.  
(50 ml) and  $\text{KNO}_3$  (1.5 to 2 g), boil for 3 min.,  
cool to below  $15^\circ$ , add nitrobenzene (2 ml) and  
titrate with  $\text{KSCN}$  soln. in the presence of  $\text{Fe}(\text{NO}_3)_3$ .  
The mean error is  $-0.34\%$ . If the  $\text{AgCl}$  ppt. is  
removed by filtration before the titration, the error  
is  $-0.07\%$ . By potentiometric titration with  
 $\text{AgNO}_3$  soln., the error is  $-0.44\%$ . The consistently  
low results are explained as being due to loss of  $\text{Cl}$   
during the reduction of the  $\text{KClO}_3$ .

G. D. KOPKIN.

PM fra

PROKOPCHIK, A.Yu.

Spontaneous decomposition of calcium hypochlorite in aqueous solution. Zhur.fiz.khim. 29 no.6:1020-1026 J. '55. (MLRA 9:1)

1. Akademiya nauk Litovskoy SSR, Institut khimii i khimicheskoy tekhnologii, Vil'nyus.

(Calcium hypochlorite)

*Prckopchik A. Yu.*

Category: USSR / Physical Chemistry - Kinetics. Combustion.  
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30059

Author : Prckopchik A. Yu., Beretskis B. V.

Inst : Academy of Sciences Lithuanian SSR

Title : Effect of Aging on Catalytic Activity of Some Hydroxide Catalysts

Orig Pub: Liet. TSR mokslu Akad. darbai, Tr. AN LitSSR, 1956, 5B, 41-55

Abstract: Study of the effect of aging, at room temperature, on the catalytic activity of gels of  $\text{Ni}(\text{OH})_2$  (I),  $\text{Co}(\text{OH})_2$  (II),  $\text{Fe}(\text{OH})_3$  (III),  $\text{Cu}(\text{OH})_2$  (IV), (and also of a number of their 2- and 3-component mixtures), as concerns the reaction of oxygen decomposition of  $\text{Ca}(\text{ClO})_2$  in alkaline, aqueous solution at  $40^\circ$ . It is shown that on aging the activity of catalysts I, and particularly of II and III, decreases, in the opinion of the authors due to recrystallization and increase in particle size. On aging of freshly prepared IV its activity drops sharply at first, almost to a zero level, but after prolonged aging the catalyst IV exhibits a slight but still appreciable catalytic

Card : 1/2

-23-

Category: USSR / Physical Chemistry - Kinetics. Combustion.  
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30059

activity. The catalytic activity of freshly precipitated hydroxides decreases in the series  $\text{Co} > \text{Ni} > \text{Cu} > \text{Fe}$ , and the activity of specimens after aging decreases in the series  $\text{Co} > \text{Fe} \gg \text{Cu} > \text{Ni}$ . Of the investigated 2-component catalysts the most active and stable are I + IV, and of the 3-component ones, I + III + IV. In the opinion of the authors, a particularly high activity, and stability to aging, is characteristic of the 2-component systems which include hydroxides that exhibit sharply distinct activity in freshly prepared condition. When the composition of catalysts is made more complex, there is often observed a change in the order of the reaction, from first to fractional or zero order. On aging of the catalysts the order of the reaction changes in the opposite direction.

Card : 2/2

-24-

*PROKOPCHIK Yu. A.*  
Category: USSR / Physical Chemistry - Kinetics. Combustion.  
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30060

Author : Prokopchik Yu. A., Norkus P. K., Lunetskass A. M.  
Inst : Academy of Sciences Lithuanian SSR  
Title : Dependence of the Catalytic Activity of Some Hydroxide Catalysts  
on the Method of Their Preparation.

Orig Pub: Liet. TSR mokslu Akad. darbai, Tr. AN LitSSR, 1956, 5B, 57-66

Abstract: Study of the dependence of catalytic properties of hydroxides and their mixtures, which have been previously described (see preceding abstract), on the method of their precipitation. It was found that high activity is exhibited by the hydroxides I, II, III (for denotation see preceding abstract) precipitated with a solution of  $\text{Cd}(\text{OH})_2$  in the presence of  $\text{Ca}(\text{ClO})_2$ , while the lowest activity is displayed by those precipitated with only a solution of  $\text{Ca}(\text{OH})_2$ , which the authors attribute to the blocking of a portion of the surface by stable  $\text{OH}$  ions. In the case of the hydroxides of Cu the opposite dependence

Card : 1/2

-25-

Category: USSR / Physical Chemistry - Kinetics. Combustion.  
Explosives. Topochemistry. Catalysis.

B-9

Abs Jour: Referat Zhur-Khimiya, No 9, 1957, 30060

of activity upon precipitation method is observed. Value of the energy of activation of the reaction, which varies in the case of I-IV from 16400 to 21000 cal/mole, is at a minimum in the case of least active catalysts. The activity of mixed catalysts, prepared by consecutive precipitation (II + IV; I + III), exceeds the summative activity of individual components, but is considerably below the activity of catalysts, of the same chemical composition, prepared by means of a conjoint precipitation. The above-stated non-additivity is due, in the opinion of the authors, to a higher degree of dispersion of the precipitates formed on consecutive precipitation. In the case of (I + III) highest activity and minimum energy of activation are observed with a ratio I : III = 85 : 15. In a number of instances the catalytic properties depend on the sequence of introduction of the individual components into the mixture under study.

Card : 2/2

-26-



PROKOPEC, Miroslav, inz.

Analysis of the stiffness of chucking tables in heavy machine tools.  
Stroj cas 13 no.1: 26-44, '62.

1. Ustav pro vyzkum stroju, Ceskoslovenska akademie ved.

PROKOPENKO, A. G.

Distr: 4E3d

✓ 2571. BLOCK STARTING OF 50 MW INSTALLATION WITH INTERMEDIATE SUPERHEAT. Verishay, V.A., Kuznetsov, G.E. and Prokopenko, A.G. (Energostroyizdat, July 1957, vol. 4, 3-11). The paper discusses the results of the block, or unit, starting of an installation consisting of a 50 MW turbine set operating with steam at 115 atm, 485°C, with intermediate superheat up to 420°C at 38 atm overpressure, and two boilers with 120 t/h output at 125 atm, having main and intermediate radiation superheaters. Simultaneous boiler firing, warming of the steam piping and turbine starting by low pressure steam was found expedient. (U). C.E.A.

*Kuznetsov State Region Electrostation and  
Lvov Polytech Inst. and Yuzhnyy Dept for  
organization of Region Electric Stations.*

*Prokopchik A.Yu.*  
PROKOPCHIK, A.Yu.; NORKUS, P.K.; LUMETSKAS, A.M.

Mixed hydroxide catalysts. Part 2: Effect of admixtures on the catalytic activity of binary hydroxide catalysts for the decomposition of calcium hypochlorite [with summary in English]. Zhur.fiz.khim. (MIRA 11:1)  
31 no.9:2093-2101 S '57.

1. Akademiya nauk Litovskoy SSR, Institut khimii i khimicheskoy tekhnologii, Vil'nyus.  
(Hydroxides) (Catalysis) (Calcium Hypochlorite)

PROKOPCHIK, A.Yu.

[Catalytic decomposition of hypochlorites and chlorites;  
a monograph] Kataliticheskoe razlozhenie gipokhloritov i  
khloritov; monografiia. Vil'nius, AN Litovskoi SSR, 1964.  
195 p. (MIRA 18:12)

SHALKAUSKAS, M.I. [Salkauskas, M.]; PROKOPCHIK, A.Yu. YANITSKIY, I.V.

Photoelectric potential in hypochlorite and chlorite solutions.  
Trudy AN Lit.SSR. Ser. B. no.2:83-95 '65. (MIRA 19:2)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.  
Submitted October 13, 1964.

ACC NR: AP7003463

(N)

SOURCE CODE: UR/0236/66/000/002/0061/0067

AUTHOR: Val'syunene, Ya. I.—Valsioniene, J.; Prokopchik, A. Yu.—Prokopcikas, A.

ORG: Institute of Chemistry and Chemical Technology, AN Lithuanian SSSR (Institut himii i khimicheskoy tekhnologii AN Litovskoy SSSR)

TITLE: Preparation of titanium surface for electroless nickel plating

SOURCE: AN LitSSR, Trudy. Seriya B. Fiziko-matematicheskkiye, khimicheskkiye, geologicheskkiye i tekhnicheskkiye nauki, no. 2, 1966, 61-67.

TOPIC TAGS: titanium, nickel plating, nickel electroless plating, metal plating, metal surface /VTI titanium

ABSTRACT: Experiments have been made to determine the optimum chemical composition of reagents and technology for electroless nickel plating of VT-1 commercial-grade titanium. Formation of a strongly adhering nickel coating on titanium surface was possible only with the reduction of nickel on an intermediate sublayer formed with pickling titanium in a 40%  $H_2SO_4$  or 35% HCl solution. Good quality, strongly adhering nickel coatings were obtained on VT-1 titanium degreased in Vienna lime, pickled in 40% sulfuric acid for 60 min at 80C, and activated at 18—20C for 2—3 sec in a solution containing 220 g/l  $NiCl_2 \cdot 6H_2O$ , 125 ml/l concentrated HCl and 20—40 g/l  $NH_4F$ . Electroless plating of the prepared surface was done in a solution such as 15 g/l  $Ni(CH_3COO)_2$  and 10 g/l  $NaH_2PO_2 \cdot H_2O$  at 90C with a solution pH of 4.0—4.5. Heat

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ACC NR: AP7003463

treatment at 300—400C increased the strength and adhesion of nickel coatings to the base metal so that they sustained a multiple 90 deg-bending up to the failure of the base metal. Orig. art. has: 4 tables.

SUB CODE: 11/ SUBM DATE: 09Feb66/ ORIG REF: 006/ OTH REF: 005/

Card 2/2

PROKOPCHIK, A.Yu. [Prokopciukas, A.]

Some physicochemical characteristics of  $M(OH)_3$  and  $N(OH)_4$ .

Trudy AN Lit. SSR. Ser. B no.2:31-36 '62.

(NINA 18:3)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.



LUNYATSKAS, A.M. [Luneckas, A.]; PROKOPCHIK, A.Yu. [Prokopcikas, A.]

Formation of anion compounds of cobalt (III) and nickel (III) in the catalytic decomposition of barium hypohalides and halides. Trudy AN Lit. SSR. Ser. B no.2:45-59 '62. (MIRA 18:3)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Ya. [Prokopiukas, A.]; VALISYUNENIS, Ya.I. [Valaunienis, J.]

Bleaching by a mixture of chlorite and hydrogen peroxide.  
Trudy AN Lit. SSR. Ser. B no.2:79-87 '64.

(MIRA 18:3)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Yu.; YANITSKIY, I.V. [Janickis, J.]; KATRAGIS, A.P.

Catalytic decomposition of perborates. Part 1: Decomposition of sodium perborate in the presence of nickel compounds. Trudy AN Lit. SSR Ser. B no.3:47-61 '62.

(MIRA 18:3)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Ya.; YANITSKIY, I.V. [Janickis, J.]; KATYAGIN, A.P.

Catalytic decomposition of perborates. Part 2: Decomposition of sodium perborate in the presence of cobalt and copper compounds. Trudy AN Lit. SSR Ser. B no.3:63-77 '62.

(MIRA 18:3)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Yu.; BUTKYAVICHYUS, Yu P. [Butkevicius, J.]

Reaction of chlorites with hypochlorites. Part 1: Reaction of  $\text{NaClO}_2$  with  $\text{NaClO}$  in alkaline solutions. Trudy AN Li<sup>+</sup> SSR Ser. B no.3:79-93 '62.

Reaction of chlorites with hypochlorites. Part 2: Reaction of  $\text{NaClO}_2$  with  $\text{NaClO}$  in the presence of hydroxide catalysts. Ibid.: 95-107

(MIRA 18:3)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

ROZOVSKIY, G.I.; BUTKIYAVICHYUS, Ye.F. [Butkevicius, J.]; PROKOPCHIK, A.Ye.

Colorimetric determination of trivalent copper. Trudy AN Lit. SSR.  
Ser. B no.3:25-29 '64. (MIRA 18:5)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Yu.; BUTKYAVICHYUS, Yu.P. [Butkevicius, J.]

Decomposition of hypochlorite in the presence of copper in a  
homogeneous medium. Trudy AN Lit. SSR. Ser. B no.3:31-40 '64.  
(MIRA 18:5)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Yu.

Mechanism of the catalytic decomposition of  $\text{NaClO}$  in the  
presence of dissolved copper hydroxide. Trudy AN Lit. SSR.  
Ser. B no.3:41-48 '64. (MIRA 18:5)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.



PROKOPCHIK, A.Yu.; YANITSKIY, I.V.; SHALKAUSKAS, M.I. [Salkauskas, M.]

Photolysis of hypochlorite in alkaline solutions. Part 1:  
Quantum yields of photolysis. Trudy AN Lit. SSR. Ser. B no.3:  
49-60 '64. (MIRA 18:5)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A.Yu.; YANITSKIY, I.V.; SHALKAUSKAS, M.I. [Salkauskas, M.]

Photolysis of hypochlorite in alkaline solutions. Part 2:  
Effect of photolysis products on quantum yields. Trudy AN  
Lit. SSR. Ser. B no.3:61-71 '64. (MIRA 18:5)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

VASHKYALES, A.I. [Vashkalis, A.]; PROKOPCHIK, A.Ye. [Prokopenikas, A.]

Study of the properties of peroxycarbonates in solution. Report  
No. " Fotocopy of study of peroxycarbonates. Trudy AN Lit. SSR.  
Ser. B no.2 75-88 '68. (MIRA 17:10)

1. Institut Khimii i Khimicheskoy Tekhnologii AN Sotsvetkoy SSR.

PRONOSTRIK, A.Ye. [Pronostriks, A.], VALISYONENS, Ye. V. [Valisyonens, V.]

Interaction of iodine chloride with hydrogen peroxide. Izv. V. Lit.  
NBR. Ser. B no. 18-700 '63. (MIR. 1/310.

I. Institut Vsesoi. i Khimicheskoy tekhnologii AN Litovskoy SSR.

ROZOVSKIY, G.I. [Rozovskis, G.]; PROKOPCHIK, A.Yu. [Prokopelkas, A.]

Anodic formation of ozone in the alkaline solution of cuprate.  
Trudy AN Lit. SSR. Ser. B no.2:57-63 '63. (MIRA 17:10)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR.

PROKOPCHIK, A. Yu. [Prokopciukas, A.]; BARTASHYUNAS, Yu.M. [Bartasiunas, J.]

Catalytic decomposition of chlorites. Pt.4: The mechanism of  
reaction. Trudy AN Lit. SSR. Ser. B no.1:141-151 '62  
(MIRA 17:8)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy  
SSR i Vil'nyusskiy gosudarstvennyy pedagogicheskiy institut.

PROKOPCHIK, A. Yu. [Prokopciukas, A.]; NORKUS, P.K.

Catalytic decomposition of chlorites. Pt.3: Dependence of  
the catalytic decomposition of alkaline earth chlorites on  
the pH of the solution. Trudy AN Lit. SSR. Ser. B no.1:  
129-139 '62 (MIRA 17:8)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy  
SSR.

ROZOVSKIY, G. I. [Rozovskis, G.]; PROKOPCHIK, A.Yu. [Prokopcik, A.]

Synthesis of strontium cuprate. Liet ak darbai no.3:177-180 '61.

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk Litovskoy SSR.



PROKOPCHIK, A. Yu.[Prokopcik, A.]; ROZOVSKIY, G. I.[Rozovskis, G.]

Electrochemical synthesis of barium cuprate. Liet ak darbai no.3:  
181-194 '61.

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk Litovskoy  
SSR.

NORKUS, P.K.; PROKOPCHIK, A. Yu.

Determination of hypochlorites, chlorites, and chlorates present simultaneously by means of arsenite using  $\text{OsO}_4$  as a catalyst.  
Zhur.anal.khim. 16 no.3:323-326 My-Je '61. (MIRA 14:6)

1. Institute of Chemistry and Chemical Technology, Academy of Sciences of the Lithuanian S. S. R., Vilnius.

(Hypochlorites)

(Chlorites)

(Chlorates)

PROKOPCHIK, A. Yu.[Prokopcikas, A.]; BARTASHYUNAS, Yu.M.[Bartasiunas, J.]

Catalytic disintegration of chlorites. Pt. 2. Disintegration of sodium chlorite in the presence of nickel and cobalt hydroxide. Liet ak darbai B no.1:133-143 '61. (EEAI 10:9)

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk Litovskoy SSR i Vil'nyusskiy gosudarstvennyy pedagogicheskiy institut.

(Chlorites) (Sodium chlorite) (Nickel hydroxide)  
(Cobalt hydroxide)

PROKOPCHIK, A. Yu.[Prokopciukas, A.]; VASHKYALIS, A. Yu.[Vaskelis, A.]

On disintegration of calcium hypochlorite in a copper magnesium catalyst. Liet ak darbai B no.1:145-153 '61. (EEAI 10:9)

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk Litovskoy SSR.

(Calcium hypochlorite) (Copper) (Magnesium)  
(Catalysts)

PROKOPCHIK, A.Yu. [Prokopciukas, A.]; YANITSKIY, I.V. [Janickis, J.];  
SADUNAS, A.S. [Sadunas, A.]

Catalytic decomposition of persulfate. III. On dependance of the  
catalytic activity of cupric hydroxide from the structure and grade  
of dehydration. Liet ak darbai B no.2:145-156 '60. (EETAI 10:1)

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk  
Litovskoy SSR.

(Copper hydroxides) (Peroxydisulfates)  
(Catalysis) (Dehydration)

NORKUS, P.K.; PROKOPCHIK, A.Yu.

Catalytic decomposition of chlorites. Liet ak darbai B no.3:43-52  
'60. (EEAI 10:3)

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk  
Litovskoy SSR.  
(Chlorites) (Catalysis)

LUNETSKAS, A.M. [Luneckas, A.]; PROKOPCHIK, A.Yu.

Catalytic decomposition of hypobromites. Liet ak darbai B no.3:  
53-66 '60. (EEAI 10:3)

1. Institut khimii i khimicheskoy tekhnologii Akademii nauk  
Litovskoy SSR.  
(Hypobromites) (Catalysis)

PROKOPCHIK, A.Yu. [Prokopchikas, A.]; Yanitskiy, I.V. [Janickis, J.];  
SADUNAS, A.S. [Sadunas, A.]

Catalytic decomposition of persulfate. I. Decomposition in the presence of cobaltic and nickel hydroxide. II. Decomposition in the presence of copper hydroxide. Liet ak darbai B no.1:119-141 '60.  
(EEAI 9:10)

1. Institut khimii i khimicheskoy tekhnologii AN Litovskoy SSR  
(Potassium peroxydisulfate)  
(Copper hydroxides)  
(Cobalt hydroxide)  
(Nickel hydroxide)



PROKOPCHIK, A. Yu.

Homogeneous catalytic decomposition of hypochlorites.  
 In: Action of some additions on the decomposition rate of  
 HClO. A. Yu. Prokopchik. *Litlatv. TSK. Moskva Akad.*  
 Dardar 1986, Ser. B, No. 2, 31-3 (in Russian). The effects  
 on the decompos. of HClO in a homogeneous medium were  
 investigated of salts of Ni, Co, Fe, and Cu and binary mixts.  
 of them as well as salts of Ce, Cd, Hg, La, Zn, Al, Ti, Pb,  
 and Ba and anions SO<sub>4</sub><sup>2-</sup>, NO<sub>3</sub><sup>-</sup>, AcO<sup>-</sup>, PO<sub>4</sub><sup>3-</sup>, BO<sub>3</sub><sup>3-</sup>,  
 CrO<sub>4</sub><sup>2-</sup>, ClO<sub>4</sub><sup>-</sup>, BrO<sub>4</sub><sup>-</sup>, MnO<sub>4</sub><sup>-</sup>, S<sub>2</sub>O<sub>8</sub><sup>2-</sup>. J. L. B.

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SOV/78-4-6-24/44

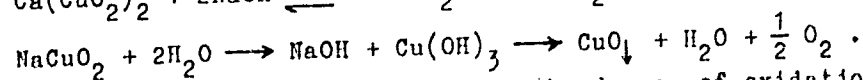
5(4)

AUTHORS: Prokopchik, A. Yu., Norkus, P. K.

TITLE: On Some Compounds of Trivalent Copper (O nekotorykh soyedineniyakh trekhvalentnoy medi)

PERIODICAL: Zhurnal neorganicheskoy khimii, 1959, Vol 4, Nr 6, pp 1359-1361 (USSR)

ABSTRACT: The syntheses of barium cuprate -  $\text{Ba}(\text{CuO}_2)_2 \cdot x\text{H}_2\text{O}$  and  $\text{Ca}(\text{CuO}_2)_2 \cdot x\text{H}_2\text{O}$  were carried out. A complete oxidation of trivalent copper already takes place in 0.25 mol NaOH solution. A catalytic decomposition of the oxidizing agent (hypochlorite) occurs in considerably alkaline solutions. The decomposition of calcium cuprate proceeds in considerably alkaline solution according to the following reaction:



A method for the determination of the degree of oxidation of copper in a reaction mixture was described. The oxidized product is diluted with 10 ml KJ solution of 10% and 5 ml

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On Some Compounds of Trivalent Copper

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2 mol  $\text{H}_2\text{SO}_4$  or  $\text{HCl}$  and well mixed until it is completely solved. The separated iodine is titrated with 0.04 n  $\text{Na}_2\text{S}_2\text{O}_3$ . The production of a cuprate of strontium failed. So did an attempt to produce copper(III)-hydroxide by oxidation with hypochlorite in an alkaline medium. There are 5 references.

ASSOCIATION: Institut khimii i khimicheskoy tekhnologii Akademii nauk  
Litovskoy SSR  
(Institute of Chemistry and Chemical Technology of the Academy  
of Sciences of the Lithuanian SSR)

SUBMITTED: March 25, 1958

Card 2/2

PROKOPCHIK, A.Yu.; NORKUS, P.K.; LUNNITSKAS, A.M.

Mixed hydroxide catalysts. Part 1: Two-component hydroxide catalysts in the decomposition of calcium hypochlorite (with summary in English). Zhur.fiz.khim.31 no.7:1547-1554 J1 '57.  
(MIRA 10:12)

1. AN Litovskoy SSR, Institut khimii i khimicheskoy tekhnologii, Vil'nyus.

(Catalyst)

(Calcium hypochlorite)